VIRGINIA DROUGHT MONITORING TASK FORCE

Drought Status Report

November 3, 2010

Statewide precipitation for the current water year, October 1, 2009 to October 31, 2010 was in the normal range (110% of normal) with all drought evaluation regions greater than 100% normal except the Big Sandy Region (97%). Normal precipitation is defined as the mean precipitation for a thirty year period of record. Precipitation greater than 85% and less than 115% of normal is considered to be in the normal range. Statewide precipitation is within the normal range (94%) for the calendar year. Statewide precipitation is 92% of normal since June 1st with all drought evaluation regions except the Shenandoah Region and the Northern Piedmont Region having greater than 85% of normal. All state drought regions have been released from the "Drought Watch" status enacted in July except for the Northern Virginia Region, the Shenandoah Region and the Upper Rappahannock River area. Appendix A contains precipitation tables for periods dating from August 1, 2009 through October 31, 2010 provided by the Climatology Office of the University of Virginia.

The National Weather Service Climate Prediction Center 6-10 day climatologic outlooks call for below normal precipitation and above normal temperatures for the entire Commonwealth. Above normal precipitation is predicted for the Shenandoah and Southwest Virginia Regions with normal precipitation predicted for the remainder of the state over the 8-14 day period. Above normal temperatures are anticipated over the 8-14 day period for the entire state. The one month outlook calls for equal chances of below normal, normal and above normal precipitation and temperatures for the entire Commonwealth. The three month outlook calls for below normal chances of precipitation statewide, except for the Shenandoah Valley Region which is predicted to have equal chances of below normal, normal and above normal precipitation. The three month temperature outlook calls for equal chances of below normal, normal and above normal temperatures statewide except for Southwest Virginia which is predicted to have above-normal temperatures.

The latest NOAA U.S. National Drought Monitor indicates "abnormally dry" to "moderate drought" conditions exist in approximately 50% of the Commonwealth. The Coastal Plain and Southwest Virginia are the only areas that are not in an "abnormally dry" or "moderate drought" condition. Approximately 1% of Virginia is experiencing "severe drought" conditions, as designated in the U.S. National Drought Monitor. The Seasonal Drought Outlook for the United States from now through January 2011 forecasts "some improvement" in the drought conditions in the Shenandoah Valley portion of the state that is currently classified as "abnormally dry", and forecasts "no drought posted or predicted" for the rest of the state. (Appendix D).

The number of public water supply systems under some sort of drought related restriction has remained steady since late September. While the Virginia Department of Health (VDH) has not reported any impacts to public water supplies that have compromised their ability to provide the needs of their customers, 10 systems are under voluntary water conservation requirements and 15 systems are under mandatory water conservation requirements. Of the 56 systems listed in the VDH report, 5 are rated as having a "Better" overall water supply situation, 2 are rated as having a "Worse" overall water supply situation and all other systems are rated as being in a "Stable" situation (Appendix F).

Reports from the Climatology Office of the University of Virginia, the Virginia Department of Environmental Quality, the United States Geological Survey, the Virginia Department of Forestry and the Virginia Department of Agriculture and Consumer Services, follow.

Virginia Department of Forestry
Wildfire Conditions

The Virginia Department of Forestry reports that recent rainfall along with cooler weather have helped to reduce the overall threat of wildfire statewide. The only significant drought threats, in terms of promoting wildfire activity, remains in far Southwest Virginia where recent rainfall events have resulted in generally light amounts of precipitation. If the current trend of weekly rainfall and continued cool temperatures hold through the month of November, then little or no threat for significant fall wildfire activity is expected. For the month of October 2010, the Department of Forestry responded to 29 wildfires which burned 753 acres and damaged or destroyed 1 homes and 2 other outbuildings.

Report of the Climatology Office of the University of Virginia

October brought relatively little in the way of storm activity to the Commonwealth, as evidenced by the statewide average of only 70% of normal for the month. Eastern and far southwestern areas fared the best overall, but only the York-James Drought Region reached the normal precipitation level.

We are now well into the portion of the year when precipitation is primarily associated with larger-scale mid-latitude storm systems and associated frontal passages. This source has a much higher potential to bring ample widespread precipitation across the state then the thunderstorm activity of summer.

These colder months also mark a distinct decline in the rate of moisture loss to evaporation, and allow precipitation an opportunity to penetrate the soil layers and replenish long-term reserves. Storm activity from now through early spring will be crucial to water supplies next year. A season with relatively few such systems often leads to a summer with long-term moisture difficulties.

Hurricane season runs through the end of November, but little activity is currently expected and the chance of significant moisture input to Virginia from this source is dwindling.

United States Geological Survey
Streamflow and Ground Water Levels

Streamflows are between normal and below normal daily conditions across the Commonwealth (Appendix G). Below normal drought conditions based on daily average streamflow are occurring in the upper reaches of the James River Basin, and in the Potomac, Kanawha, Tennessee, and Chowan River Basins. A majority of the Rappahannock River Basin is in below normal drought conditions based on daily average streamflow (Appendix H). Below normal drought conditions have been persistent in many of basins across the Commonwealth as evidenced by 28-day average streamflow statistics (Appendix I).

A majority of the wells in the Climate Response Network are still in the normal range. Several wells are below to well below normal range, especially in the Potomac River Basin (Appendix J). Most of the wells had water-level rises in response to the rainfall in late-September and early-October. The largest water-level recovery occurred in wells located in the lower Coastal Plain and on the Eastern Shore. Wells along the Fall Line and in the western parts of the Commonwealth showed only slight water-level rises and have returned to similar recessions as prior to this rainfall.

The limited impact on groundwater levels from the rainfall in late-September and early-October may indicate that infiltrating water was absorbed to replenish the soil moisture deficit. The onset of the leaf off period and cooler temperatures combined with lower soil moisture deficits will be conducive for groundwater recharge. Precipitation, especially snowfall, during the prime recharge period in the winter and early spring months is needed.

Virginia Department of Environmental Quality
Conditions of Major Reservoirs

Levels of large reservoirs statewide are at or above normal levels. Four large multi-purpose reservoirs are identified as drought indicators in the *Virginia Drought Assessment and Response Plan* (Plan); Smith Mountain Lake, Lake Moomaw, Lake Anna and Kerr Reservoir. Three of these four of these reservoirs are currently at levels above their Drought Watch stages. Reservoir level data for Lake Moomaw on the Jackson River was unavailable due to system testing. Below is a summary of large reservoir conditions:

- As of November 3, Lake Moomaw on the Jackson River is not reporting reservoir level data due to system testing.
- As of November 3, Kerr Reservoir was approximately 3.67 ft above the Guide Curve and was anticipated to drop 0.40 ft by November 4th. Drought Watch status is reached at greater than 3 ft below the Guide Curve.
- As of November 3, Smith Mountain Lake was at elevation 793.83 ft. The Drought Watch stage for Smith Mountain Lake is elevation 793 feet and below.
- As of November 3, Lake Anna was at elevation 248.3 feet (1.7 feet below full). The Drought Watch stage for Lake Anna Lake is elevation 248 feet and below.

Virginia Department of Agriculture and Consumer Services
Status of Agricultural Drought

Overview
According to the USDA Crop Weather Report released on October 31, 2010, only 29% of topsoil moisture ranged from short to very short. During the month of October, much of the state received needed rainfall and in some cases thunderstorms, high winds, and a few tornados. Rainfall, however, is still below average in many areas.

As of November 3, 2010, sixty-seven localities have requested the Governor's assistance in obtaining federal disaster designation due to drought conditions. Those localities include: Accomack, Albemarle, Amelia, Amherst, Appomattox, Bedford, Botetourt, Brunswick, Buckingham , Campbell, Caroline, Carroll, Charles City, Charlotte, Clarke, Craig, Culpeper, Cumberland, Dinwiddie, Essex, Fauquier, Fluvanna, Franklin, Frederick, Gloucester, Goochland, Greene, Greensville, Halifax, Hanover, Henrico, Isle of Wight, James City, King and Queen, King George, King William, Lancaster, Louisa, Lunenburg, Mathews, Mecklenburg, Middlesex, Montgomery, Nelson, New Kent, Northampton, Northumberland, Nottoway, Orange, Page, Patrick, Pittsylvania, Powhatan, Prince Edward, Pulaski, Rappahannock, Richmond (County), Rockbridge, Shenandoah, Southampton, Spotsylvania, Stafford, Suffolk (City),Surry, Warren, Westmoreland and York.

USDA/Farm Service Agency (FSA) has completed 60 of the 67 requested Loss Assessment Reports (LARs) which indicate that these localities have experienced at least a 30% loss in a major commodity due to drought. VDACS is in the process of working with the Governor's Office to obtain federal disaster designations due to drought conditions on behalf of these localities. VDACS has requested that the USDA/FSA prepare official loss assessment reports (LARs) for the remaining seven localities (Amelia, Northampton, and Suffolk).

Impact on Dairies/Livestock/Poultry:
One of the biggest concerns for livestock producers as winter approaches is the cost of feed supplies. Feed supplies are expected to be critically low and expensive due to the 2010 drought. Hay is in short supply around the state because dairymen were forced to feed their livestock hay throughout the summer rather than letting the animals graze. Pastures continue to be in very poor shape with many needing to be replanted.

With no pasture, variable feed quality and high grain prices, winter nutrition will be challenging and a winter like last year's could be devastating. In some areas, livestock (especially cows) are being culled due to low silage quality and quantity.

Impact on Nurseries/Christmas Trees:
Rainfall across the state has provided much needed relief from earlier drought conditions for the nursery industry.

Impact on Crops:
Producers are in the process of completing their harvest and planting winter cover crops. Across the state, producers are continuing to assess the impact the 2010 drought has had on their crops. The 2010 corn crop and much of the state's soybean crop was devastated by the hot dry conditions in the summer of 2010. Additionally, the increased insect presence in late summer hurt the yields as well. Fruit and vegetable producers without irrigation lost a lot of their production while producers with good irrigation were able to produce good quality product as the hot, dry conditions reduced the incidence of disease. Overall, yields are expected to be well below average.

Impact on Creeks, Rivers, and Wells:
Rain has replenished some farm ponds and helped with small creek and spring flows.

APPENDIX A

Precipitation Departures by Drought Evaluation Region

PRELIMINARY PRECIPITATION SUMMARY

Prepared: 11/05/10

	DROUGHT REGION	OBSERVED	Oct 1, 2010 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	2.41	2.88	-0.47	84%
2	New River	1.92	3.17	-1.25	61%
3	Roanoke	2.82	3.71	-0.89	76%
4	Upper James	2.22	3.25	-1.03	68%
5	Middle James	2.74	3.84	-1.10	71%
6	Shenandoah	1.25	3.19	-1.94	39%
7	Northern Virginia	2.65	3.48	-0.83	76%
8	Northern Piedmont	2.29	3.99	-1.70	57%
9	Chowan	2.55	3.58	-1.03	71%
10	Northern Coastal Plain	2.70	3.51	-0.81	77%
11	York-James	3.55	3.53	0.02	101%
12	Southeast Virginia	3.04	3.66	-0.62	83%
13	Eastern Shore	2.65	3.21	-0.56	83%
	Statewide	2.45	3.50	-1.05	70%

	DROUGHT REGION	OBSERVED	Sep 1, 2010 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	4.73	6.34	-1.61	75%
2	New River	5.88	6.58	-0.70	89%
3	Roanoke	9.07	7.94	1.13	114%
4	Upper James	7.74	6.75	0.99	115%
5	Middle James	8.84	7.97	0.87	111%
6	Shenandoah	6.24	6.86	-0.62	91%
7	Northern Virginia	9.06	7.55	1.51	120%
8	Northern Piedmont	8.58	8.27	0.31	104%
9	Chowan	10.85	8.01	2.84	135%
10	Northern Coastal Plain	10.38	7.60	2.78	137%
11	York-James	12.82	8.43	4.39	152%
12	Southeast Virginia	16.32	8.09	8.23	202%
13	Eastern Shore	7.21	6.82	0.39	106%
	Statewide	8.49	7.50	0.99	113%

	DROUGHT REGION	OBSERVED	Aug 1, 2010 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	9.86	10.17	-0.31	97%
2	New River	11.12	9.89	1.23	112%
3	Roanoke	15.51	11.66	3.85	133%
4	Upper James	10.71	10.08	0.63	106%
5	Middle James	13.03	11.79	1.24	111%
6	Shenandoah	8.94	10.19	-1.25	88%
7	Northern Virginia	13.33	11.40	1.93	117%
8	Northern Piedmont	11.99	12.09	-0.10	99%

9	Chowan	15.11	12.32	2.79	123%
10	Northern Coastal Plain	14.72	11.46	3.26	128%
11	York-James	14.52	13.30	1.22	109%
12	Southeast Virginia	19.52	13.21	6.31	148%
13	Eastern Shore	11.99	10.69	1.30	112%
	Statewide	12.86	11.33	1.53	113%

	DROUGHT REGION	OBSERVED	Jul 1, 2010 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	13.59	14.65	-1.06	93%
2	New River	13.96	13.68	0.28	102%
3	Roanoke	18.76	16.05	2.71	117%
4	Upper James	14.37	14.12	0.25	102%
5	Middle James	14.90	16.20	-1.30	92%
6	Shenandoah	12.32	13.95	-1.63	88%
7	Northern Virginia	16.79	15.17	1.62	111%
8	Northern Piedmont	14.32	16.49	-2.17	87%
9	Chowan	16.80	16.83	-0.03	100%
10	Northern Coastal Plain	16.18	15.91	0.27	102%
11	York-James	17.88	18.40	-0.52	97%
12	Southeast Virginia	23.25	18.28	4.97	127%
13	Eastern Shore	14.08	14.69	-0.61	96%
	Statewide	15.63	15.67	-0.04	100%

	DROUGHT REGION	OBSERVED	Jun 1, 2010 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	18.37	18.79	-0.42	98%
2	New River	16.53	17.53	-1.00	94%
3	Roanoke	20.85	19.94	0.91	105%
4	Upper James	16.22	17.83	-1.61	91%
5	Middle James	16.77	19.71	-2.94	85%
6	Shenandoah	14.15	17.66	-3.51	80%
7	Northern Virginia	18.13	19.03	-0.90	95%
8	Northern Piedmont	16.73	20.50	-3.77	82%
9	Chowan	19.32	20.48	-1.16	94%
10	Northern Coastal Plain	18.19	19.47	-1.28	93%
11	York-James	18.81	21.81	-3.00	86%
12	Southeast Virginia	26.48	21.89	4.59	121%
13	Eastern Shore	15.60	17.67	-2.07	88%
	Statewide	17.99	19.46	-1.47	92%

	DROUGHT REGION	OBSERVED	May 1, 2010 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	23.82	23.61	0.21	101%
2	New River	20.34	21.74	-1.40	94%
3	Roanoke	25.50	24.27	1.23	105%
4	Upper James	20.03	22.11	-2.08	91%
5	Middle James	20.82	23.95	-3.13	87%
6	Shenandoah	17.21	21.50	-4.29	80%

7	Northern Virginia	22.77	23.37	-0.60	97%
8	Northern Piedmont	20.40	24.72	-4.32	83%
9	Chowan	24.74	24.57	0.17	101%
10	Northern Coastal Plain	20.59	23.63	-3.04	87%
11	York-James	23.71	26.08	-2.37	91%
12	Southeast Virginia	30.68	25.75	4.93	119%
13	Eastern Shore	17.72	21.19	-3.47	84%
	Statewide	22.16	23.72	-1.56	93%

	DROUGHT REGION	OBSERVED	Apr 1, 2010 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	26.50	27.37	-0.87	97%
2	New River	22.19	25.29	-3.10	88%
3	Roanoke	27.26	28.07	-0.81	97%
4	Upper James	21.73	25.51	-3.78	85%
5	Middle James	22.57	27.29	-4.72	83%
6	Shenandoah	18.56	24.42	-5.86	76%
7	Northern Virginia	24.37	26.67	-2.30	91%
8	Northern Piedmont	21.93	28.01	-6.08	78%
9	Chowan	26.18	28.00	-1.82	93%
10	Northern Coastal Plain	22.18	26.72	-4.54	83%
11	York-James	24.66	29.38	-4.72	84%
12	Southeast Virginia	31.87	29.00	2.87	110%
13	Eastern Shore	18.90	24.11	-5.21	78%
	Statewide	23.87	27.14	-3.27	88%

	DROUGHT REGION	OBSERVED	Mar 1, 2010 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	29.38	31.62	-2.24	93%
2	New River	26.25	28.96	-2.71	91%
3	Roanoke	32.39	32.34	0.05	100%
4	Upper James	25.83	29.30	-3.47	88%
5	Middle James	27.71	31.35	-3.64	88%
6	Shenandoah	23.28	27.62	-4.34	84%
7	Northern Virginia	28.11	30.33	-2.22	93%
8	Northern Piedmont	26.85	31.82	-4.97	84%
9	Chowan	30.77	32.37	-1.60	95%
10	Northern Coastal Plain	28.33	31.00	-2.67	91%
11	York-James	30.27	34.07	-3.80	89%
12	Southeast Virginia	38.18	33.20	4.98	115%
13	Eastern Shore	25.13	28.42	-3.29	88%
	Statewide	28.57	31.18	-2.61	92%

	DROUGHT REGION	OBSERVED	Feb 1, 2010 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	32.15	35.20	-3.05	91%
2	New River	28.67	31.89	-3.22	90%
3	Roanoke	35.04	35.65	-0.61	98%
4	Upper James	28.15	32.15	-4.00	88%

5	Middle James	30.93	34.47	-3.54	90%
6	Shenandoah	26.15	30.03	-3.88	87%
7	Northern Virginia	32.15	33.00	-0.85	97%
8	Northern Piedmont	29.38	34.79	-5.41	84%
9	Chowan	34.02	35.54	-1.52	96%
10	Northern Coastal Plain	31.63	34.14	-2.51	93%
11	York-James	33.96	37.60	-3.64	90%
12	Southeast Virginia	41.93	36.70	5.23	114%
13	Eastern Shore	29.01	31.61	-2.60	92%
	Statewide	31.54	34.31	-2.77	92%

	DROUGHT REGION	OBSERVED	Jan 1, 2010 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	36.38	38.93	-2.55	93%
2	New River	33.18	35.10	-1.92	95%
3	Roanoke	40.11	39.57	0.54	101%
4	Upper James	32.47	35.43	-2.96	92%
5	Middle James	35.32	38.13	-2.81	93%
6	Shenandoah	29.97	32.88	-2.91	91%
7	Northern Virginia	34.85	36.28	-1.43	96%
8	Northern Piedmont	33.31	38.31	-5.00	87%
9	Chowan	38.04	39.65	-1.61	96%
10	Northern Coastal Plain	35.33	37.89	-2.56	93%
11	York-James	38.39	41.74	-3.35	92%
12	Southeast Virginia	46.25	40.86	5.39	113%
13	Eastern Shore	32.03	35.17	-3.14	91%
	Statewide	35.75	37.95	-2.20	94%

	DROUGHT REGION	OBSERVED	Dec 1, 2009 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	42.07	42.57	-0.50	99%
2	New River	40.47	37.81	2.66	107%
3	Roanoke	47.68	42.82	4.86	111%
4	Upper James	39.86	38.38	1.48	104%
5	Middle James	43.47	41.30	2.17	105%
6	Shenandoah	35.21	35.47	-0.26	99%
7	Northern Virginia	41.10	39.38	1.72	104%
8	Northern Piedmont	39.80	41.59	-1.79	96%
9	Chowan	45.98	42.67	3.31	108%
10	Northern Coastal Plain	43.24	41.17	2.07	105%
11	York-James	45.34	45.13	0.21	100%
12	Southeast Virginia	54.06	44.04	10.02	123%
13	Eastern Shore	40.56	38.41	2.15	106%
	Statewide	42.89	41.07	1.82	104%

	DROUGHT REGION	OBSERVED	Nov 1, 2009 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	44.32	45.85	-1.53	97%

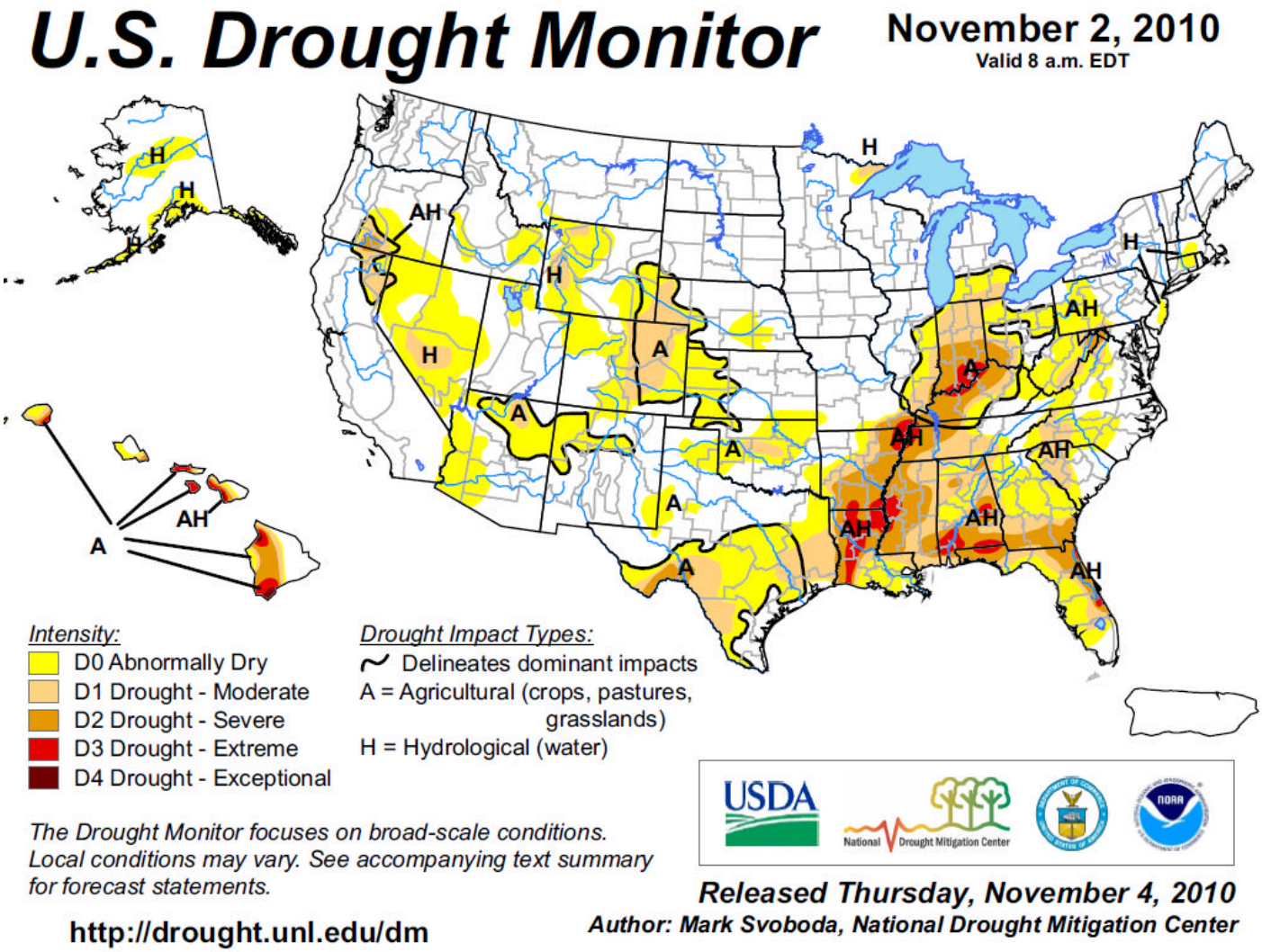
2	New River	45.47	40.84	4.63	111%
3	Roanoke	55.86	46.18	9.68	121%
4	Upper James	44.75	41.74	3.01	107%
5	Middle James	52.04	44.81	7.23	116%
6	Shenandoah	39.06	38.52	0.54	101%
7	Northern Virginia	45.04	42.79	2.25	105%
8	Northern Piedmont	45.86	45.39	0.47	101%
9	Chowan	55.62	45.78	9.84	121%
10	Northern Coastal Plain	51.99	44.31	7.68	117%
11	York-James	54.60	48.50	6.10	113%
12	Southeast Virginia	64.44	47.11	17.33	137%
13	Eastern Shore	48.11	41.35	6.76	116%
	Statewide	49.52	44.30	5.22	112%

	DROUGHT REGION	OBSERVED	Oct 1, 2009 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	47.36	48.73	-1.37	97%
2	New River	48.16	44.01	4.15	109%
3	Roanoke	58.42	49.89	8.53	117%
4	Upper James	47.53	44.99	2.54	106%
5	Middle James	55.10	48.65	6.45	113%
6	Shenandoah	41.82	41.71	0.11	100%
7	Northern Virginia	49.85	46.27	3.58	108%
8	Northern Piedmont	49.28	49.38	-0.10	100%
9	Chowan	57.67	49.36	8.31	117%
10	Northern Coastal Plain	56.20	47.82	8.38	118%
11	York-James	57.69	52.03	5.66	111%
12	Southeast Virginia	66.75	50.77	15.98	131%
13	Eastern Shore	52.48	44.56	7.92	118%
	Statewide	52.53	47.80	4.73	110%

	DROUGHT REGION	OBSERVED	Sep 1, 2009 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	52.55	52.19	0.36	101%
2	New River	52.17	47.42	4.75	110%
3	Roanoke	61.48	54.12	7.36	114%
4	Upper James	50.81	48.49	2.32	105%
5	Middle James	58.27	52.78	5.49	110%
6	Shenandoah	44.03	45.38	-1.35	97%
7	Northern Virginia	52.09	50.34	1.75	103%
8	Northern Piedmont	52.16	53.66	-1.50	97%
9	Chowan	61.98	53.79	8.19	115%
10	Northern Coastal Plain	59.28	51.91	7.37	114%
11	York-James	63.60	56.93	6.67	112%
12	Southeast Virginia	74.06	55.20	18.86	134%
13	Eastern Shore	58.96	48.17	10.79	122%
	Statewide	56.17	51.80	4.37	108%

	DROUGHT REGION	OBSERVED	Aug 1, 2009 NORMAL	- Oct 31, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	57.04	56.02	1.02	102%
2	New River	56.68	50.73	5.95	112%
3	Roanoke	65.82	57.84	7.98	114%
4	Upper James	54.19	51.82	2.37	105%
5	Middle James	61.79	56.60	5.19	109%
6	Shenandoah	47.08	48.71	-1.63	97%
7	Northern Virginia	56.06	54.19	1.87	103%
8	Northern Piedmont	55.31	57.48	-2.17	96%
9	Chowan	65.82	58.10	7.72	113%
10	Northern Coastal Plain	64.54	55.77	8.77	116%
11	York-James	69.07	61.80	7.27	112%
12	Southeast Virginia	83.51	60.32	23.19	138%
13	Eastern Shore	63.55	52.04	11.51	122%
	Statewide	60.35	55.63	4.72	108%

APPENDIX B


U.S. Drought Monitor
November 2, 2010
Valid 8 a.m. EDT
Intensity:
D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe
D3 Drought - Extreme
D4 Drought - Exceptional
Drought Impact Types:
Delineates dominant impacts
A = Agricultural (crops, pastures, grasslands)
H = Hydrological (water)
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.
http://drought.unl.edu/dm
USDA
National Drought Mitigation Center
Released Thursday, November 4, 2010
Author: Mark Svoboda, National Drought Mitigation Center

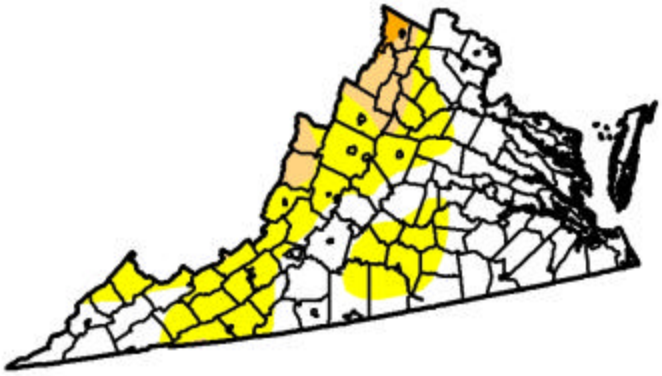
APPENDIX C

U.S. Drought Monitor
Virginia

November 2, 2010
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	57.0	43.0	7.7	0.9	0.0	0.0
Last Week (10/26/2010 map)	55.4	44.6	7.7	0.9	0.0	0.0
3 Months Ago (08/10/2010 map)	13.5	86.5	59.8	34.3	0.0	0.0
Start of Calendar Year (01/05/2010 map)	100.0	0.0	0.0	0.0	0.0	0.0
Start of Water Year (10/05/2010 map)	51.8	48.2	7.6	0.9	0.0	0.0
One Year Ago (11/03/2009 map)	100.0	0.0	0.0	0.0	0.0	0.0



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

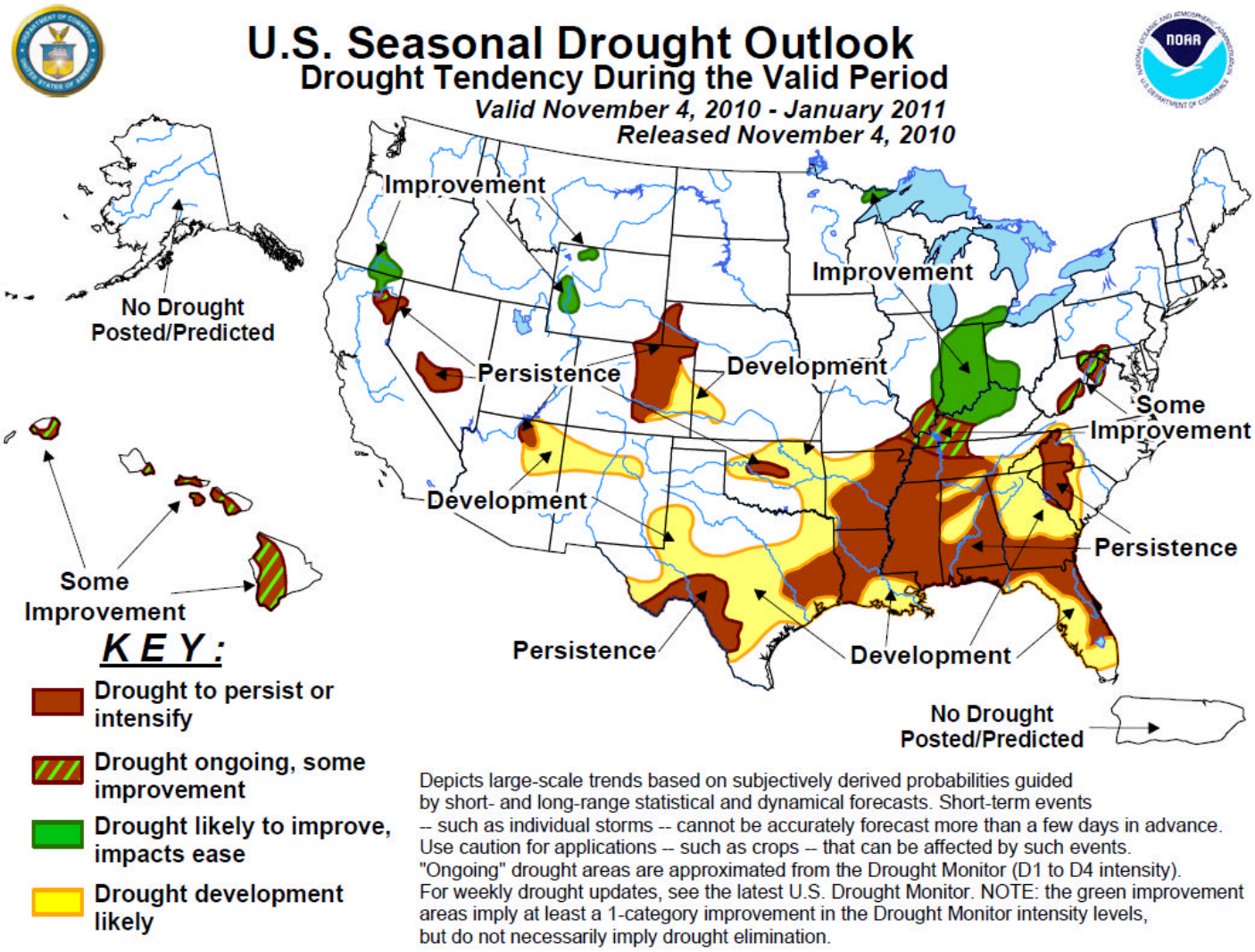
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

http://drought.unl.edu/dm

Released Thursday, November 4, 2010

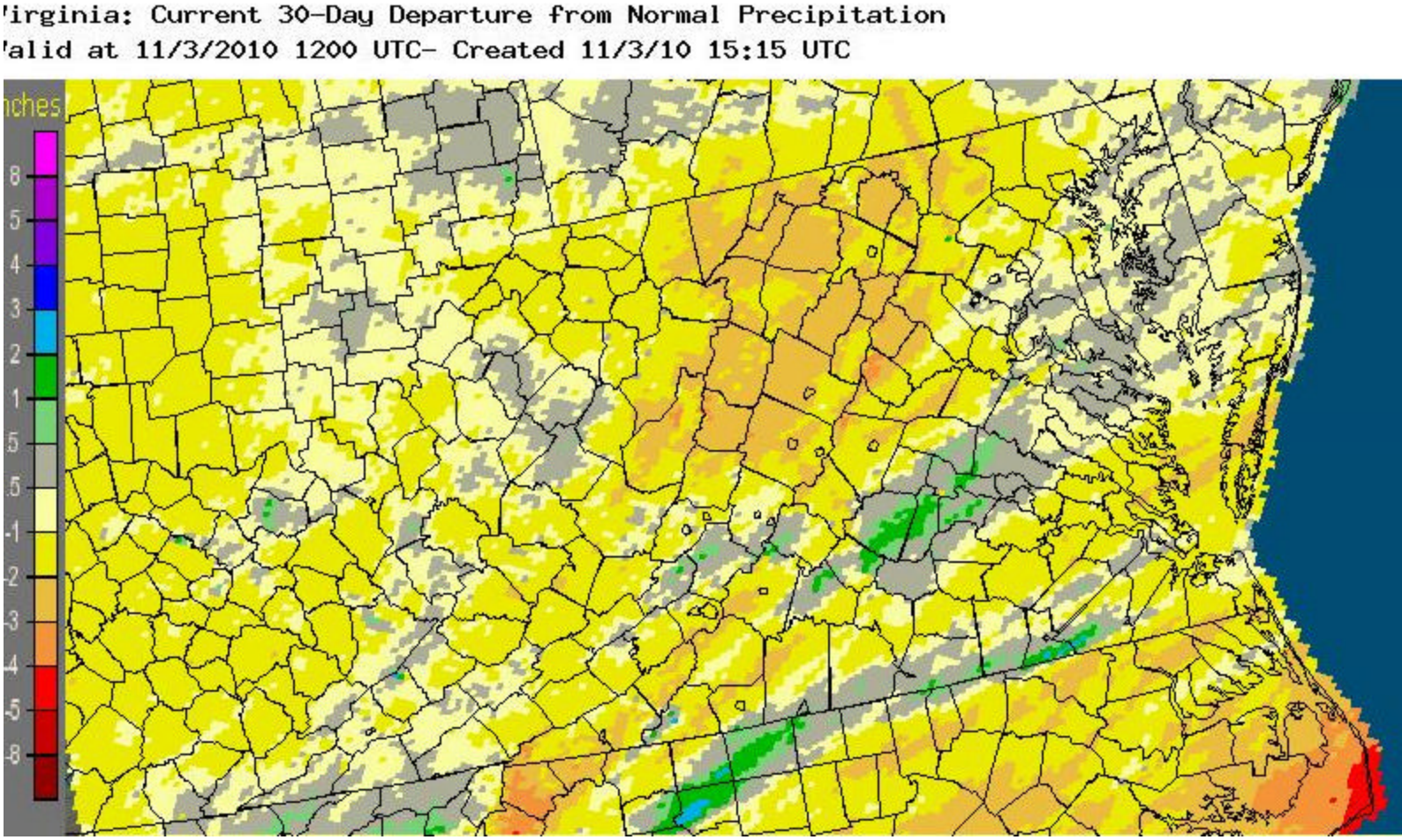
Author: Mark Svoboda, National Drought Mitigation Center

APPENDIX D


U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid November 4, 2010 - January 2011
Released November 4, 2010
Improvement
Improvement
No Drought
Posted/Predicted
Persistence
Development
Some
Improvement
Development
Persistence
Some
Improvement
Persistence
Development
No Drought
Posted/Predicted
KEY:
Drought to persist or intensify
Drought ongoing, some improvement
Drought likely to improve, impacts ease
Drought development likely
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

APPENDIX E

30-Day Departure from Normal Precipitation



APPENDIX F
Condition of Public Water Supplies
November 2, 2010

ODW Drought Situation Report

Date: **11/2/10**

	Restriction totals	Population Totals
Mandatory	15	563,607
Voluntary	10	141,646
Total	**25**	705,253

N-None
M-Mandatory
V-Voluntary

B-Better
S-Stable/Same
W-Worse

PWSID	Waterworks	Source Name	Restrictions	Situation	Population Served
2003050	ACSA - Crozet	Beaver Creek Reservoir	V	S - 11/02/10 - Will continue voluntary conservation.	6,310
2003051	ACSA - Scottsville	Totier Creek Reservoir	V	S - 11/02/10 - Will continue voluntary conservation.	723
2003053	ACSA - Urban Area	Sugar Hollow, Ragged Mtn., South Rivanna, North Rivanna	V	S - 11/02/10 - Will continue voluntary conservation.	55,510
2005095	Cherokee	City of Covington (Jackson River)	M	S - 11/02/10 - Mandatory conservation due to DEQ agreement relative to water level at Lake Moomaw (not a drinking water source, headwaters of Jackson River).	486
2005160	Cliftondale Park/Wilson Creek/Sharon	Town of Clifton Forge (Smith Creek)	M	S - 11/02/10 - Mandatory conservation due to DEQ agreement relative to water level at Lake Moomaw (not a drinking water source, headwaters of Jackson River).	1,629
2005440	Intervale/Clearwater Park	City of Covington (Jackson River)	M	S - 11/02/10 - Mandatory conservation due to DEQ agreement relative to water level at Lake	1,179

				Moomaw (not a drinking water source, headwaters of Jackson River).	
2005600	Pounding Mill	City of Covington (Jackson River)	M	S - 11/02/10 - Mandatory conservation due to DEQ agreement relative to water level at Lake Moomaw (not a drinking water source, headwaters of Jackson River).	1,775
2005800	Rosedale/Callaghan	City of Covington (Jackson River)	M	S - 11/02/10 - Mandatory conservation due to DEQ agreement relative to water level at Lake Moomaw (not a drinking water source, headwaters of Jackson River).	800
2005840	Selma/Low Moor/Valley Ridge	Town of Clifton Forge (Smith Creek)	M	S - 11/02/10 - Mandatory conservation due to DEQ agreement relative to water level at Lake Moomaw (not a drinking water source, headwaters of Jackson River).	1,767
2005950	Wesgate	Town of Clifton Forge (Smith Creek)	M	S - 11/02/10 - Mandatory conservation due to DEQ agreement relative to water level at Lake Moomaw (not a drinking water source, headwaters of Jackson River).	288
2187406	Front Royal, Town of	South Fork Shenandoah River, Happy Creek, and Sloane Creek	V	W - 10/31/10 - Implemented voluntary conservation based on running 14-day stream flow average of 23.4% (376 cfs). DEQ VWPP requires conservation controls be implemented at	12,500

				24% (voluntary) of mean stream flow (400 cfs) based on 14-day running average	
2540500	City of Charlottesville	Sugar Hollow, Ragged Mtn., South Rivanna, North Rivanna	V	S - 11/02/10 - Will continue voluntary conservation.	41,487
3053280	DCWA Central (Dinwiddie County)	Appomattox River Water Authority (ARWA)	**M**	**S**- 11/01/2010 - ARWA reservior level increased and triggered call to lift emergency restrictions. Mandatory restrictions in place on 10/13/2010.	6,800
3081550	GCWSA - Jarratt	Nottoway River	N	**S** - 11/02/2010 - Waterworks production rate reduced due to lower demand; river level sufficient to allow plant operation at 1.9 mgd. Gage at Stony Creek indicates 2.94 feet.	7,190
3093120	Isle of Wight County	Suffolk	N	**B** - 11/02/10 - Obtains water from Suffolk. Follows Suffolk's lead on conservation.	1,284
3095490	James City Service Authority	Ground water	N	**B** - 11/1/10 - Went off all conservaton on 10/15/10. No restrictions in place at all.	49,880
3149700	Puddledock Road	ARWA	**M**	**S**- 11/01/2010 - Improvement from Emergency to Mandatory restrictions on 10/14/2010. ARWA reservior level increase triggered call for lifting emergency restrictions.	9,723
3550050	Chesapeake - Western Branch system	City of Portsmouth	N	**S** -11/2/2010 This portion of the city is consecutive to (receives water from) the city of Portsmouth. Will follow Portsmouth's	36,642

				lead on conservation.	
3550051	Chesapeake	Northwest River, City of Norfolk Raw Water (Lake Gaston)	N	**S** -11/1/2010 Total rainfall for October3.35 inches. They received 11.4 inches of rain on 9/30/2010. There are no water restrictions in Chesapeake. Chlorides are used as an indicator of drought, the higher the levels the more concentrated the contaminant in a lesser amount of surface water. They remain low at 24 mg/l. Continuing to purchase raw water from Norfolk (7.0 MGD average). NWR averages 4.4 MGD. The Intown Lakes remain full and there are no irregularities in the tidal patterns in NWR.	103,504
3550052	Chesapeake - South Norfolk system	City of Norfolk	N	**S** -11/2/2010-This portion of the city is consecutive to (receives water from) the city of Norfolk. Will follow Norfolk's lead on conservation.	38,709
3570150	Colonial Heights	ARWA	**M**	**S** - 11/01/2010 - Improvement from emergency to mandatory restrictions as of 10/13/2010. Generally follow ARWA recommendations on water restrictions.	17,286
3595250	Emporia	Meherrin River	N	**S** - 11/01/2010 - Reservoir level sufficient for normal operation.	5,600

3670800	Virginia-American Water Company (Hopewell)	Appomattox & James Rivers	N	**S** - 11/01/2010 - Level at intakes sufficient to supply plant. Still detecting MIB (taste & odor) in raw and finished water, but decreasing.	28000 - Primary / 45463 Total including Consecutive System (Ft. Lee)
3700500	Newport News	Chickahomony River, Skiffs Creek, Diascand, Little Creek, Harwoods Mill, Lee Hall	N	**B -** 10/28/10 - * Reservoir Status: 80.80 % Full * 36.52 Million Gallons Delivered	414,000
3710100	Norfolk	Lake Prince, Lake Burnt Mills, Western Branch reservoir, Nottoway River, Blackwater River, 4 western wells; Little Creek reservoir, Lakes Smith, Lawson, Whitehurst, and Wright. Lake Gaston.	N	**S** - As of 11/02/10, reservoirs at 94.7% (from 99.3% on 10/11/10). Historic reservoir capacity is 81.7% at this time of year. Avg. pumping from Lake Gaston = 8.2 MGD. Total Reservoir Storage = 14.408 MG.	261,250 - Primary / 755,617 - Total including consecutive systems (Va Beach + military bases).
3730750	Petersburg	ARWA	**M**	**S** - 11/02/2010 - Emergency restrictions lifted and mandatory restrictions requested 10/14/2010. Generally follow ARWA recommendations on water restrictions.	33,740
3740600	Portsmouth	Lakes Cohoon, Meade, Kilby, and Speights Run	N	S - As of 10/29/10, reservoirs at 100% (from 100% on 10/08/10). Median reservoir capacity is 92% for the month and historical average capacity is 85% (period of 1969-2008). The emergency wells are OFF.	100,400 - Primary / 120,400 Total including consecutive systems (military bases)
3800805	Suffolk	Lone Star Lakes, Cumps Mill Pond	N	B 11/1/2010-Will follow Portsmouth's lead and the region as far as conservation. Received 1.38 inches of rain from	62,562

				10/25/2010 through 10/31/2010. Average reservoir levels : Southern Lakes at 90% capacity, for the Northern Lakes at 100% and Crumps Mill Pond at 95.24% . No conservation measures implemented at this time but will continue to monitor.	
3810900	Virginia Beach	Norfolk	N	**S** - 11/02/10 - Obtains water from Norfolk.	423,743
3830850	Williamsburg	Waller Mill Reservoir	N	**W** 11/01/10: 4.5" above primary spillway - about 94% of usable capacity.	16,400
4041035	APPOMATTOX RIVER WATER AUTHORITY	Surface water; Lake Chesdin	**M**	**B**- Wholesaler to Chesterfield County, Prince George County, Dinwiddie County; Cities of Petersburg and Colonial Heights. Within the past week, the reservoir has risen from 21" below top of dam to 3" above top of dam. Mandatory restrictions are still in place, but may be lifted later this week.	**200,000**
4041845	CHESTERFIELD CO CENTRAL WATER SYSTEM	Surface water; Swift Creek reservoir; purchases finished water	**M**	**S**- Purchases water from the City of Richmond and the Appomattox River Water Authority. Within the past week, the Swift Creek Reservoir has increased from 1.2 feet below top of dam to 1.0 feet below top of dam. Mandatory restrictions are still in place because the County	286,000

				purchases a significant amount of water from ARWA.	
4057800	TAPPAHANNOCK, TOWN OF	Groundwater wells	N	**S**	2,100
4073311	GLOUCESTER CO WATER TREATMENT PLT	Surface water, Beaverdam reservoir; 2 deep groundwater wells	N	**S-**Reservoir is full.	8,870
4075283	EASTERN GOOCHLAND CENTRAL WATER SYSTEM	Purchased surface water	V	**S-**purchases water from Henrico County	2,500
4075735	JAMES RIVER CORRECTIONAL CTR	Surface water; James River	N	**S-** Conservation at all DOC facilities	9,300
4085398	HANOVER SUBURBAN WATER SYSTEM	Surface water; North Anna River; some groundwater wells; purchases finished water	N	**S (see Richmond)**	71,000
4085770	SPRING MEADOWS-MEADOW GATE	Groundwater wells	N	**S**	2,300
4087125	HENRICO COUNTY WATER SYSTEM	Surface water; James River	N	**S (see Richmond)**	289,000
4101900	WEST POINT, TOWN OF	Groundwater wells	N	**S**	3,000
4127110	DELMARVA PROPERTIES	Groundwater wells	N	**S-**New Kent Co. encourages conservation at all county owned waterworks.	7,700
4145675	POWHATAN COURTHOUSE	Groundwater wells	N	**S**	2,600
4193280	COLONIAL BEACH, TOWN OF	Groundwater wells	N	**S**	3,300
4760100	RICHMOND, CITY OF	Surface water; James River	N	**S**- water levels do not affect intake; James River Regional Flow Management Plan set restrictions based on James River level for counties of Henrico, Chesterfield, Goochland, and Hanover counties, which purchase water from the City.	197,000

6033085	Caroline Utility	Groundwater	**M**	**S** - Mandatory water use restriction of High-Level 3 went into effect 7/13/2010. On 9/14/2010, restriction level was reduced to Low - Level 1 due to decreased customer demand. (Updated 10/29/10)	3,600 Primary
6047500	Town of Culpeper	Surface water - Lake Pelham	N	S - Lake Pelham level is 3" above invert of overflow on 11/1	14,200
6059501	Fairfax Water	Surface Water - Potomac River and Occoquan Reservoir	N	S - 10/25/10 - Potomac River is flowing at about 2000 cuft/sec, which is just above the watch level. Occoquan Reservoir is full.	823,216 primary 1.8MM total
6061200	Marshall	Groundwater	**M**	**S** - The WSA Alert Messaging Service maintains the Water Use Restriction Notice as of 11/2/2010. The mandatory water use restriction is not directly drought related but depends on water source development.	2,134
6061600	Town of Warrenton	Surface (Cedar Run) and groundwater	V	S-On Tuesday November 2,Warrenton Reservoir surface was at 440.5 ft vs full level of 445.3 ft. Water is being transferred from Airlie Reservoir.	11,160
6107150	Town of Hamilton	Groundwater	V	**S** - 10/26/10 Voluntary water use restrictions initiated 7/6/2010. No supply problems.	2,000
6107300	Town of Leesburg	Surface Water - Potomac River	N	S - 10/25/10 - Potomac River is flowing at about 2000 cuft/sec, which is just above the watch level.	46,300

6107600	Town of Purcellville	Surfce water/groundwater	V	S - 10/26/10 - Water levels in surface reservoir is just over 1 foot below overflow, about 80% full. Voluntary water conservation initiated 7/2/10. No water supply problems.	6,300
6107650	Town of Round Hill	Groundwater	V	S - 10/26/10 - Voluntary water use restrictions replaced mandatory on 10/21/10. No problems.	3,156
6137500	Town of Orange	Surface: Rapidan River	N	S - 14-day moving avg of Rapidan River flow = 346 cfs on 11/2	4,500
6137999	Wilderness	Surface - Rapidan River	N	S	11,331
6600100	City of Fairfax	Surface Water	N	S - 10/26/10 Goose Creek flow has increased sufficiently to take Beaver Dam Reservoir off-line 9/29/10.	24,000

APPENDIX G
USGS Streamflow Conditions for November 2, 2010

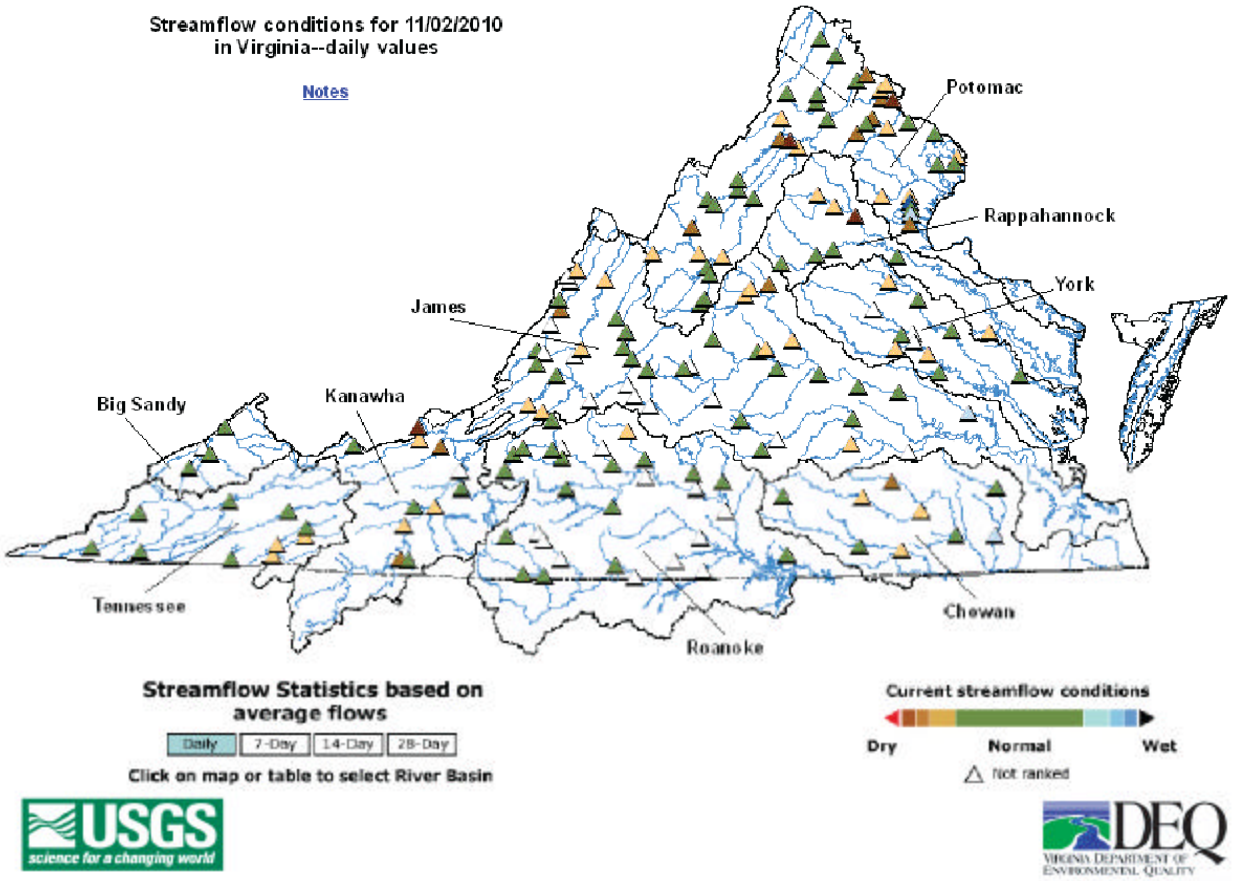


Figure 1. Streamflow conditions for November 2, 2010 in Virginia based on daily streamflow.

APPENDIX H
Drought Watch -- USGS State Information on Drought
Map of below normal daily average streamflow

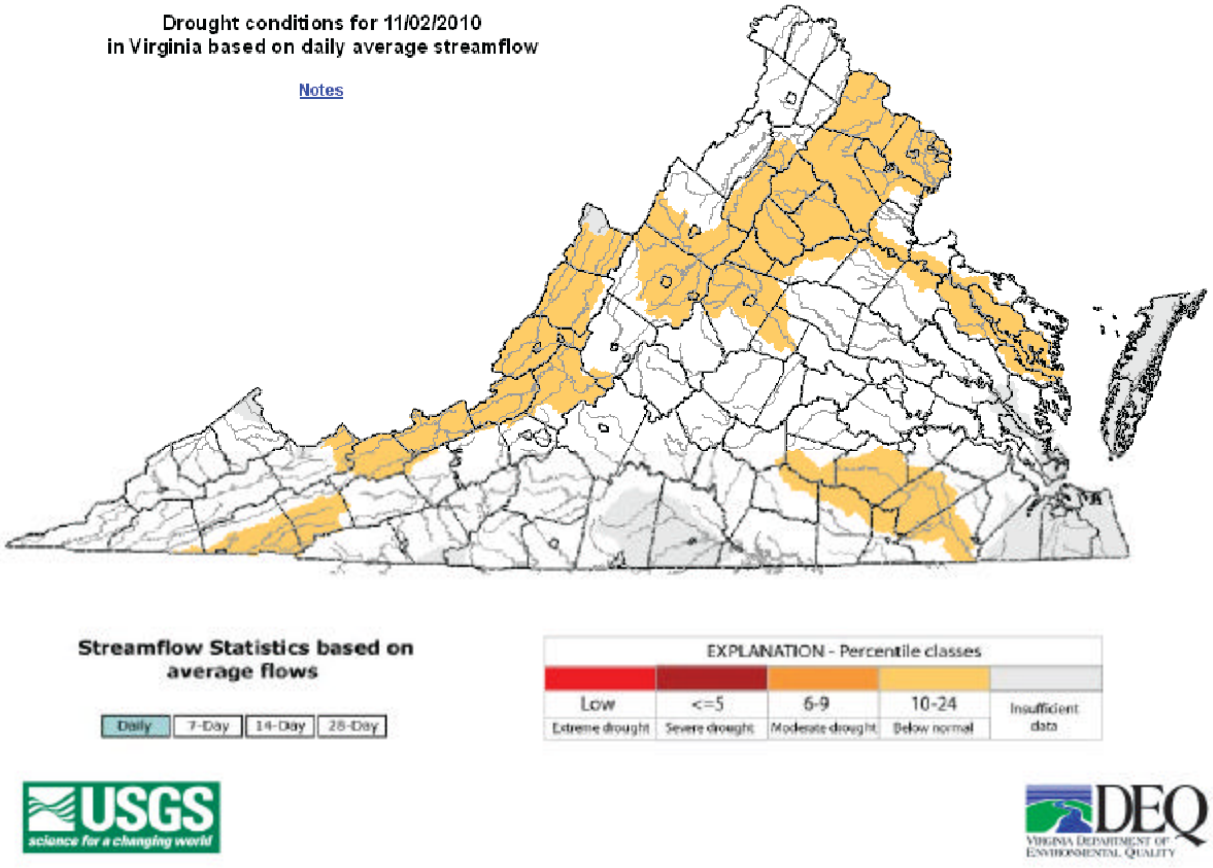


Figure 2. Drought conditions for November 2, 2010 in Virginia based on daily average streamflow.

EXPLANATION - Percentile classes				
Low	<=5	6-9	10-24	Insufficient data
Extreme drought	Severe drought	Moderate drought	Below normal	

APPENDIX I
Drought Watch -- USGS State Information on Drought
Map of below normal 28 day average streamflow

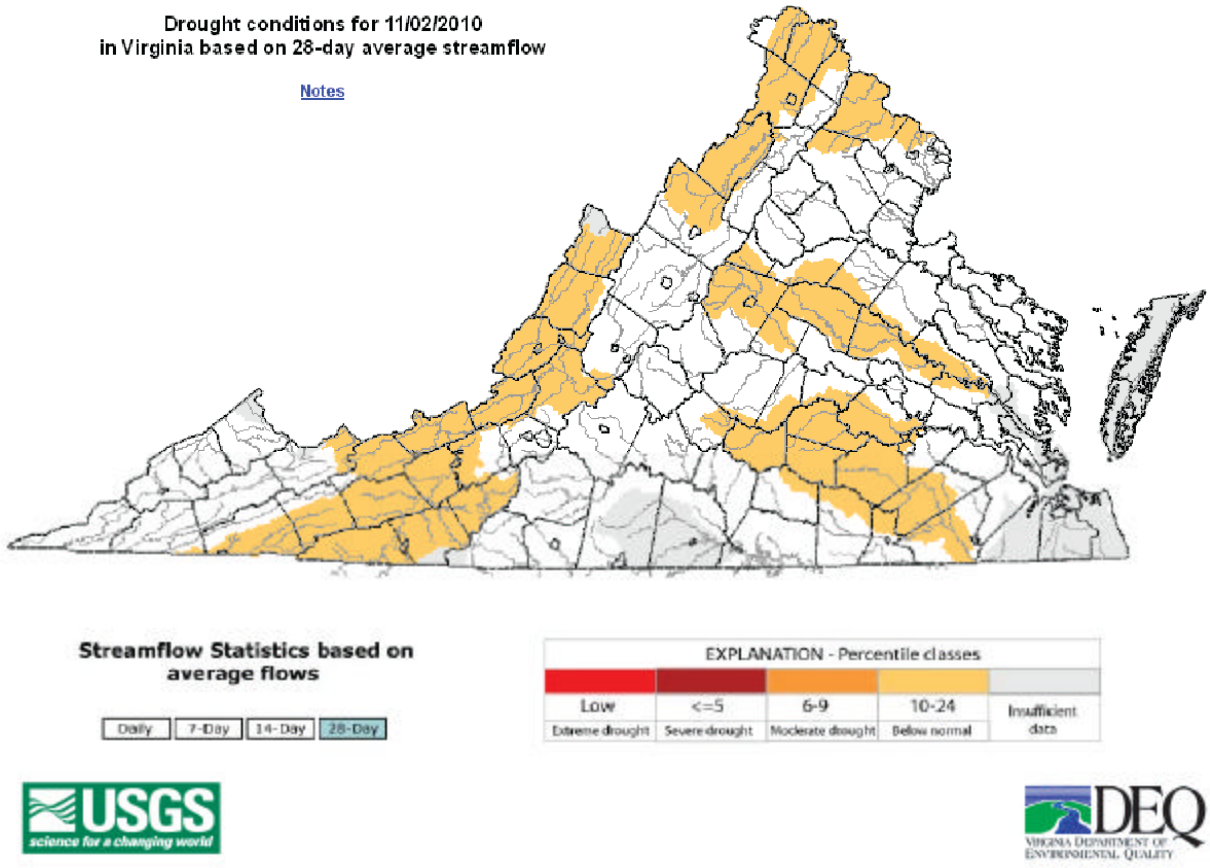


Figure 3. Drought conditions for November 2, 2010 in Virginia based on 28-day average streamflow.

APPENDIX J
Virginia Climate Response Network
November 2, 2010

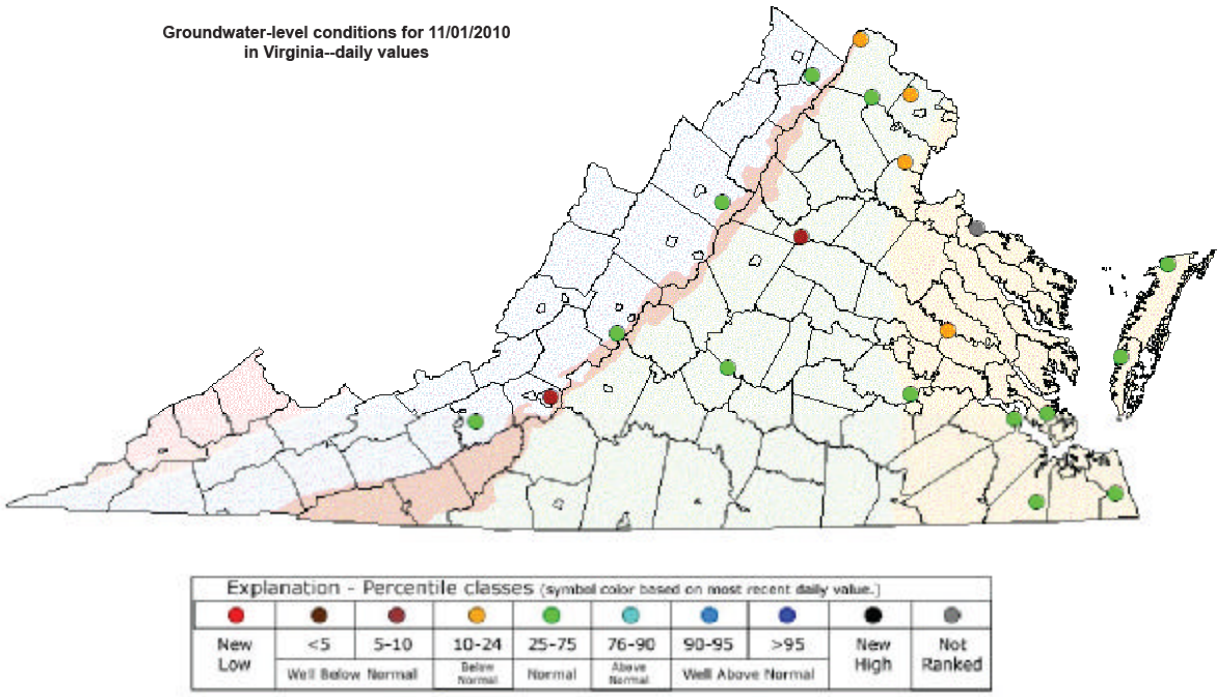


Figure 4. Groundwater-level conditions for November 2, 2010 in Virginia.

Explanation - Percentile classes (symbol color based on most recent daily value.)
New Low
<5
5-10
10-24
25-75
76-90
90-95
>95
New High
Not Ranked
Well Below Normal
Below Normal
Normal
Above Normal
Well Above Normal